

AUSTRALIAN FORMICIDAE.

NEW GENERA AND SPECIES.

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(Seventy Text-figures.)

[Read 30th March, 1949.]

INTRODUCTION.

All but one of the new species of ants described in this paper have been collected by Mr. J. W. T. Armstrong of Nyngan, N.S.W. During 1946, in the area around Nyngan, over 160 different species have been collected, and it is interesting to note that the larger Subfamilies, Cerapachyinae, Ponerinae, Myrmicinae, Dolichoderinae and Formicinae are all well represented. There are about thirty new species, but unfortunately in the case of several of the obviously polymorphic species, only one form has been located, so that the descriptions of such species have to be delayed to avoid future confusion.

With some hesitation the new genus *Schizopelta* is proposed for a very interesting Myrmicine, collected by Mr. Armstrong in October, 1946. In certain notes this ant resembles specimens of *Vollenhovia*, but the conformation of the clypeus is so peculiar that it seems best to place the species in a new genus and await the decision of other myrmecologists. Only one male has so far been collected, and consequently certain details of the anatomy have been passed over rather than risk damaging this specimen by more extensive examination. A considerable number of workers, however, have been examined, and very little variation was found.

The species of the second new genus, *Stenothorax*, was collected on the top of a sandy hill near Greensborough, Victoria, in 1938. A complete colony was taken, but unfortunately during the years all specimens but three have passed through various collections, and at the moment cannot be traced. In the paper the genus has not been placed in a tribe, though it appears to be close to both Solenopsidini and Pheidolini.

Subfamily PONERINAE Lapeletier 1836.

Tribe ODONTOMACHINI Mayr. 1862.

Genus ANOCHETUS Mayr 1861.

ANOCHETUS ARMSTRONGI sp. nov. (Text-figs. 1-6.)

Worker.

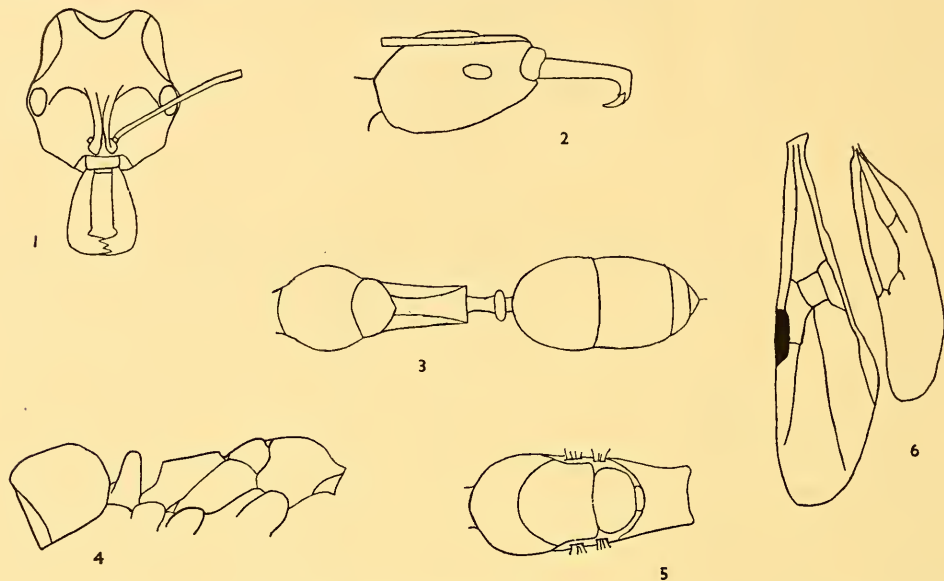
Length 5.5-6 mm. Head, thorax, node, legs, mandibles and antennae clear yellowish red, with the vertex of the head darker brownish red; eyes, tips of mandibular teeth and anterior border of the pronotum black; gaster deep reddish brown with the apex paler.

Head smooth and shining except for the longitudinal fine striae on the area between the frontal carinae. Thorax shining and smooth except for the dorsum of the epinotum which is very finely and transversely striate. Petiole, gaster and legs smooth and shining. Scape with a few longitudinal ridges.

Hair confined to the inner border of the mandibles where it is long, erect and yellowish. Pubescence yellow, very short, adpressed confined to the funiculus and tibiae.

Head, excluding the mandibles, as long as the broadest part, that is the line from eye to eye, slightly broader in front than behind, sides straight except for the distinct bulge at the region of the eyes, occipital border deeply concave; mandibles as long as three-quarters of the length of the head, curved downwards abruptly at the tips, and terminating in three teeth, of which the two outer ones are sharp and twice as long as the centre one; clypeus short, narrow with the anterior border straight; frontal carinae diverging behind and extending beyond the eyes while in front they form two

flattened lobes; frontal groove distinct and terminating behind in a deep pit; eyes large, placed just before the centre of the sides of the head; scapes extend beyond the occipital lobes by twice their thickness; first and third segments of the funiculus equal, and longer than the second, all segments longer than broad, the apical longer than the two preceding together.



Text-figures 1-6. *Anochetus armstrongi* sp. nov.

1. Worker head. 2. Worker head in profile. 3. Worker, dorsal view. 4. Worker, lateral view. 5. Female, dorsal view of thorax. 6. Female wings.

Thorax more than twice as long as the broadest part; pronotum slightly longer than broad, with very convex sides and convex anterior border, which is slightly margined; mesonotum broader than long, three-quarters as broad as the pronotum with feebly convex sides; all thoracic sutures clearly impressed; epinotum more than twice as long as broad, the dorsum is broader behind than in front. In profile the pronotum and mesonotum form an even convexity with a slight dip at the promesonotal suture. There is a marked depression before the epinotum. Dorsum of the epinotum straight, lower behind than in front, one and a half times as long as the feebly concave declivity. The epinotal corner is almost right angled. Petiole about three times as broad as long, deeply concave on top. In profile higher than the epinotum, about twice as high as broad at the base, and twice as broad at the base as at the top, the faces are almost straight. Postpetiole slightly longer than broad, broader behind than in front, with convex sides and anterior border. There is a deep constriction separating the postpetiole from the first gastric segment. Sting long. Legs long and slender.

Female.

Length 6-8 mm. Colour as in the worker, though some examples have the legs, mandibles and antennae more yellowish.

Pilosity and sculpture of the worker, except that the striae on the epinotum are confined to the posterior half.

Very similar to the worker, but the scape is shorter, not reaching the occipital border by its thickness. Ocelli yellowish, small but distinct.

Thorax slightly more than twice as long as broad; pronotum almost twice as broad as long, convex and margined in front, the sides feebly convex; mesonotum slightly broader than long, the parapsidal furrows not impressed; all thoracic sutures deep; scutellum large, twice as broad as long; postscutellum indicated; epinotum very slightly

longer than broad, with almost straight sides, and feebly concave posterior border. Petiole as in the worker except that the dorsum is entire and almost straight. Rest as in worker. Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: Eight females and sixty workers. There are slight variations in colour. The specimens are much larger than those of *A. rectangularis* Mayr, or of Forel's variety *diabolus*, and distinguished easily by the shape of the node.

Types: Holotype worker and female in C.S.I.R., Canberra.

Subfamily MYRMICINAE Lepeletier 1836.

Genus STENOTHORAX gen. nov.

Worker.

Small. Mandibles large, triangular, and strongly dentate. Clypeus narrow with a slight depression at the centre in front. In profile it is seen to project slightly over the mandibles. The frontal carinae are broadly flattened and cover the insertions of the scapes. Between the lobes, formed by the carinae, is a deep broad groove extending as far back as the end of the carinae. Antennae eleven segmented, the scape reaching just beyond the eyes. First segment of the funiculus as long as the four following which are broader than long. There is a three-segmented club with the apical segment longer than the preceding two segments. The eyes are very small, placed about the middle of the sides of the head. The head is almost square. The thorax has no sutures on the dorsum, but is greatly narrowed and depressed about the meso-epinotal area. The pro-mesonotum is large in front and tapers away almost to a point. The epinotum is roughly wedge-shaped without a distinct posterior border, since the dorsum is concave and merges into the sloping declivity. There are no spines or teeth, but the lateral border is sharp. The stalk of the first node is long and slender, but the nodes and gaster are closely placed together. The nodes are cubic when seen from above with the first node much smaller than the second. Gaster ovate. The anterior tibiae have pectinate spurs, the middle and hind tibiae without spurs. Claws simple.

Worker major: Head very similar to that of worker. The clypeus is not notched in the centre nor overhanging the mandibles. The frontal carinae are shorter. The eyes, placed at the centre of the sides of the head, are very large, hemispherical. There are two very distinct ocelli but no trace of the third. The rest of the body is exactly the same as that of the worker though slightly larger. There are no traces of sutures on the dorsum of the thorax. The legs are the same as in the worker.

Genotype: *Stenothorax katerinae* sp. nov.

STENOTHORAX KATERINAE sp. nov. (Text-figs. 7-16.)

Worker minor.

Length 3 mm. Uniformly light reddish brown with the legs slightly paler.

Mandibles smooth and shining; clypeus and the space between the frontal carinae faintly shagreened; head including the flattened frontal carinae longitudinally finely rugose with the spaces between the rugae smooth and shining; pronotum finely rugose, the rugae having a circular direction, the spaces smooth and shining; epinotum faintly sculptured, microscopically reticulate-punctate; sides of pronotum transversely striate; sides of rest of thorax and the whole of the stalk microscopically reticulate-punctate; petiole, postpetiole and gaster very faintly shagreened; legs smooth.

Hair golden, long, erect on head and body, suberect on legs, abundant but never hiding the sculpture. Pubescence paler and confined to funiculus, tibiae and tarsi.

Head without the mandibles square, with the sides and the occipital border almost straight, the corners rounded; mandibles large triangular, with six strong teeth, the apical three being stronger than the other three; clypeus narrow with anterior border rounded. There is a faint depression at the centre of the anterior border. Frontal carinae broadly flattened, forming two lobes that overhang the clypeus. Between the lobes is a deep rectangular groove, twice as long as broad. The scapes extend to the posterior quarter of the head, and are not thickened; first segment of the funiculus

almost as long as the four following, second to sixth broader than long, seventh longer than broad, the three following segments form a distinct club, of which the apical segment is as long as the two preceding together; eyes very small, placed just behind the middle of the sides of the head.

Thorax twice as long as broad and has no sutures; pro-mesonotum large, longer than broad, in front slightly narrower than the head and tapering away to a point behind, the anterior border rounded and without marked corners. The small area between the pro-mesonotum and the epinotum strongly depressed, from this arises the peculiar epinotum. It is wedge-shaped, and the dorsum is concave, so that it is difficult to say where it emerges into the epinotal declivity. At its broadest part it is less than half as broad as the pro-mesonotum. The lateral borders are sharp so that from certain angles the posterior corners seem to be sharp. In profile the pro-mesonotum is strongly convex, flattened slightly at the middle. There is a very small raised metanotum which is not noticeable in the dorsal view. The epinotum is low, with the dorsum straight and sloping into the slightly shorter and feebly concave declivity. The stalk is long and narrow; petiole almost square, slightly narrower in front than behind, the anterior angles rounded, the sides and posterior border straight. There is hardly any stalk between the petiole and postpetiole. The postpetiole is larger than the petiole, square, with the faces straight and the corners rounded. In profile the petiole is higher than the postpetiole, as high as long, with the anterior face feebly convex, dorsum sharply convex, and the posterior face straight. The postpetiole is dome-shaped. Gaster ovate. Legs short, robust, with femora and tibiae slightly thickened.

Worker major.

Length 3.8 mm. Head reddish brown with the area around the ocelli very dark, almost black; mandibles except for the reddish tips, antennae reddish brown, thorax light reddish yellow with the legs pale yellow; petiole and postpetiole brownish yellow and the gaster dull yellow. Hair golden, long, erect on body and suberect on legs, abundant throughout, but not hiding the sculpture. Pubescence pale, confined to funiculus, tibiae and tarsi.

Mandibles smooth with a few faint striae. Rest of the sculpture as in the worker but the circular rugae on the pronotum are more pronounced, and the punctuation on the epinotum very clear. The anterior coxae have a few longitudinal ridges, and the sides of the petiole are densely and microscopically reticulate punctate.

Head almost square with almost straight occipital border and feebly convex sides; clypeus not notched at the centre, and not overhanging the mandibles; mandibles as in worker; frontal carinae as in worker, but not extending back quite so far; antennae as in worker, but the scapes slightly thickened, extending as far as the posterior border of the eyes; eyes very large, hemispherical, and placed at the centre of the sides of the head. There are two very distinct ocelli but no trace of a third, nor even a pit for an ocellus.

Thorax is very similar to that of the worker, and has no sutures of any kind. In profile the pro-mesonotum appears to be flatter, the small metanotum is hardly visible, the dorsum of the epinotum is not so sloping. The petiole and postpetiole are very similar to those of the worker. In profile they are almost the same size, the anterior face and dorsum of the petiole form almost a single convexity. Rest as in worker.

Collected by J. J. McAreavey, S.J.

Type locality: Greensborough, Victoria.

Types: Holotype worker in collection at C.S.I.R., Canberra.

Tribe METAPONINI Forel 1911.

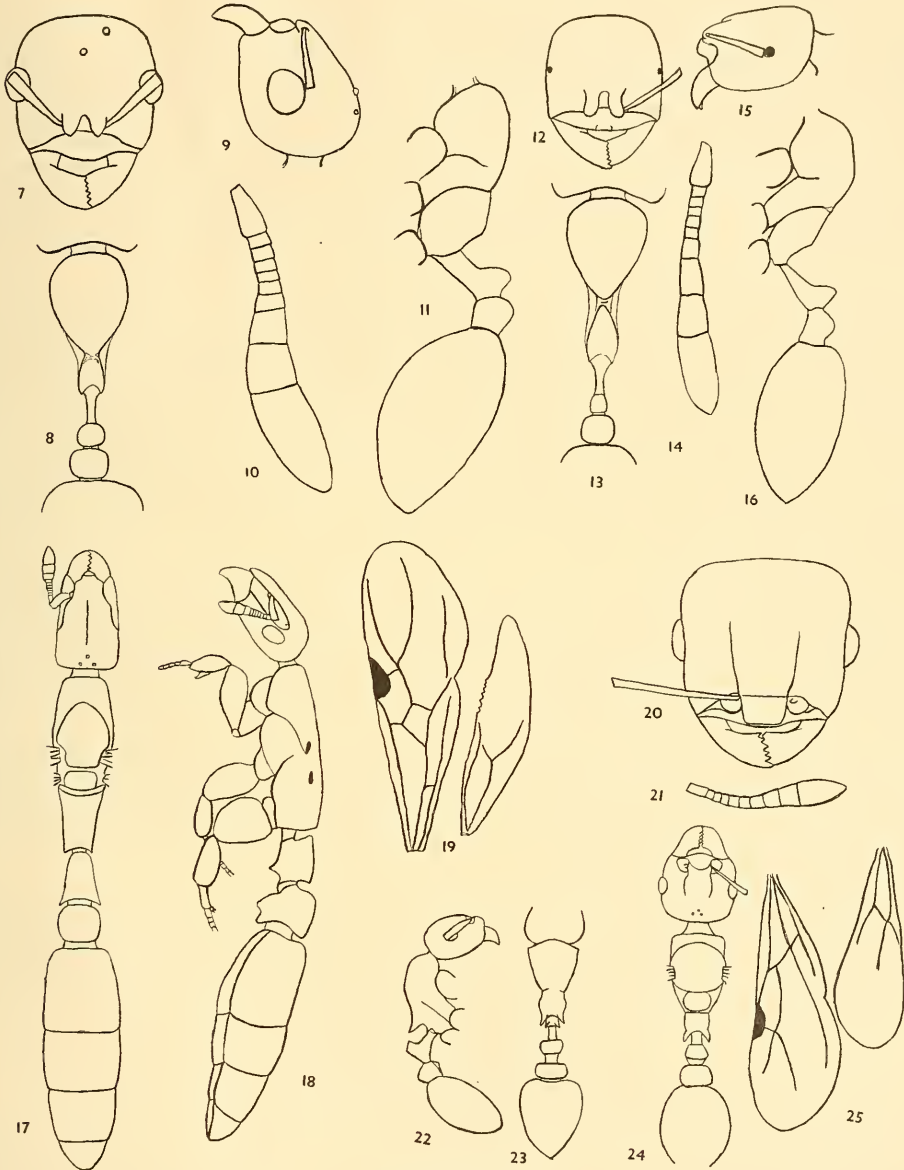
Genus METAPONE Forel 1911.

METAPONE TRICOLOR sp. nov. (Text-figs. 17-19.)

Female.

Length 7.2 mm. Head except for the mandibles and clypeus, which are reddish, thorax and petiole dark chestnut (almost black in parts). The postpetiole is very dark brown but lighter than the thorax. The first segment of the gaster is brownish red. The rest of the gaster is yellowish red. The antennae and legs are yellowish.

Head smooth and shining except for the antennal grooves and the lateral portions of the clypeus, which are evenly and strongly striate longitudinally. There are faint traces of striae on the central portion of the clypeus. The thorax, petiole and post-petiole are smooth and shining, with scattered piligerous microscopic punctures, which



Text-figures 7-25.

7-16, *Stenothorax katerinae* sp. nov. 7. Worker major, head. 8. Worker major, dorsal view of body. 9. Worker major, lateral view of head. 10. Worker major, funiculus. 11. Worker major, lateral view of body. 12. Worker minor, head. 13. Worker minor, dorsal view of body. 14. Worker minor, funiculus. 15. Worker minor, lateral view of head. 16. Worker minor, lateral view of body.

17-19. *Metapone tricolor* sp. nov. 17. Female, dorsal view. 18. Female, lateral view. 19. Female, wings.

20-25. *Xiphomyrmex capitalis* sp. nov. 20. Worker, head. 21. Worker, funiculus. 22. Worker, lateral view. 23. Worker, dorsal view. 24. Female, dorsal view. 25. Female, wings.

are more numerous on the petiole and postpetiole. The sides of the thorax are striate. The upper half of the sides of the petiole is striate, while the lower half is densely and microscopically punctate. The sides of the postpetiole are densely reticulate punctate. The gaster is smooth and shining with faint traces of reticulation.

Head, including the mandibles, nearly twice as long as broad, slightly narrower in front than behind, with the sides and the posterior border straight; mandibles large, with five strong sharp teeth; clypeus, flat, narrow, and projecting slightly over the mandibles. The anterior border is feebly concave, and produced at each corner in a small tooth. The sides are margined but there is no distinct posterior border. There is a deep groove extending from the clypeal area to the anterior ocellus. Eyes are large, but placed low on the sides of the head, so that they are not visible from above; ocelli yellow, hemispherical, placed near the posterior border of the head; scapes stout, flattened and very short; funiculus with an enlarged three-segmented club; the first segment nearly as long as the three following, second to seventh very much broader than long, apical segment as long as the two preceding together.

Thorax long and slender, two and a half times as long as broad, pronotum one and a half times as broad as long, with the humeri bluntly angular, the anterior border and sides almost straight; mesonotum slightly longer than broad, slightly broader than the pronotum, with the sides feebly convex; scutellum rather large, broader than long; wings short, the veins extending to the apex of the wings; epinotum broader in front than behind, almost twice as long as the posterior border, the sides straight, and the posterior border feebly concave. In profile the thorax is very low, at least three times as long as high, with the dorsum almost straight. The epinotal declivity is slightly concave, and one-third as long as the epinotal dorsum, into which it passes through an abrupt curve.

Petiole twice as long as broad in front, broader behind than in front, with anterior border and sides straight and the posterior border concave and terminating on each side in a sharp tooth. In profile the anterior face is concave, the dorsum flat, and the posterior face concave. The petiole is about one and a half times as long as high, and on the ventral surface is a long sharp projection. Postpetiole is square with the sides feebly convex and the corners rounded. In profile the anterior face is convex and merges into the flat dorsum, while the posterior face is concave. On the ventral surface are two massive, bluntly pointed projections. Gaster long and narrow, broader than the postpetiole by only half the width of the gaster. First segment longer than broad. Legs are short and the femora greatly enlarged. Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: One female.

This species resembles *M. leae* Wheeler, but there are noticeable differences in colour and sculpture. It differs also in the shape of the petiole, the width of the gaster, the length of the first segment of the funiculus and the outline of the head.

Type: Holotype female in collection C.S.I.R., Canberra.

Tribe TETRAMORIINI Emery 1895.

Genus XIPHOMYRMEX Fopel 1887.

XIPHOMYRMEX CAPITALIS sp. nov. (Text-figs. 20-25.)

Worker.

Length, 3-3.2 mm. Head almost black with the antennae and mandibles yellowish; thorax, petiole and postpetiole brownish yellow; gaster and legs yellowish. There is considerable variation in colour. Some examples have the thorax and nodes very dark, almost as dark as the head, other examples have the head brownish with a darker area on the vertex, and this dark area varies in size among such examples.

Mandibles finely longitudinally striate; head longitudinally striate rugose with the spaces between the rugae feebly shagreened; thorax rugose longitudinally, the rugae joined by transverse ridges to form large rectangular messes. The epinotum is more irregularly rugose. The spaces between the rugae densely and microscopically punctate.

Petiole and postpetiole are densely microscopically punctate with a few longitudinal ridges; gaster densely but faintly microscopically punctate.

Hair yellow, erect, long and abundant. Pubescence greyish, apparent only on the funiculus.

Head very slightly longer than broad, with the sides and occipital border almost straight, and the posterior angles rounded.

Mandibles large, triangular, with five or six sharp teeth; clypeus with the large central portion raised and convex, the lateral portions narrow, with their posterior borders raised to form strong ridges of the antennal sockets. The anterior border of the whole clypeus is almost straight. Frontal area is not indicated; frontal carinae rather long, flattened in front and widely separated, merging behind into the rugae of the head. Scape does not quite reach the occipital border; first segment of the funiculus as long as the three following, fourth to sixth as long as broad, apical segment of the three segmented club as long as the two preceding together; eyes large, convex, placed at the middle of the sides of head.

Thorax one and a quarter times as long as the anterior border of the pronotum, which is the broadest part of the thorax. There are no thoracic sutures, though there is a marked depression at the region of the meso-epinotal suture. The pro-mesonotal area is rounded in front, with sharp corners and the sides feebly convex, more than twice as broad in front as behind. Epinotum is one-quarter longer than broad, with feebly convex sides and concave posterior border. The posterior angles are produced as long sharp spines directed backwards and slightly outwards, and almost as long as the interval between them. There are two shorter spines at the base of the declivity. In profile the dorsum is convex, more so on the pro-mesonotum than on the epinotum. The epinotal declivity is short and almost vertical, though the upper and lower epinotal spines give it the appearance of being concave. Petiole margined, slightly broader than long, convex on the sides, but almost straight on the anterior and posterior borders. In profile it is slightly higher than long, rectangular, with all faces straight and the angles sharp. Postpetiole is ovate, almost twice as broad as long; in profile dome-shaped, as long as high, with convex faces. Gaster ovate. Legs long but robust.

Female.

Length 3.2-4.2 mm. Head, thorax, petiole and postpetiole dark reddish brown, with considerable variation in the shades of brown. Some have the pronotal angles lighter brown, others the sides of the head lighter than the vertex and the front of the head, others have the mesonotum lighter than the rest of the thorax. Mandibles, antennae and legs brownish yellow. In some examples the legs are much lighter than the antennae. Gaster dark orange.

Mandibles smooth; head longitudinally striate with the spaces between the rugae shagreened; pronotum with a few transverse striae; mesonotum, scutellum and epinotum regularly longitudinally striate, the spaces between microscopically punctate, especially between the epinotal spines; petiole and postpetiole microscopically punctate and longitudinally rugose; gaster finely reticulate.

Hair as in worker.

Head similar to that of worker, but slightly broader than long; the frontal area clearly indicated; the frontal carinae slightly more diverging behind; the scapes slightly shorter. The eyes are placed a little behind the middle of the sides; ocelli brownish, large and distinct.

Thorax is more robust, nearly twice as long as broad. The pronotum from above is narrow, three times as broad as long, rounded in front, the anterior corners sharp; mesonotum slightly longer than broad; all thoracic sutures deeply marked; scutellum elliptical, broader than long. The epinotum is slightly broader than long, the sides straight and the posterior border feebly concave. The epinotal spines similar to those of worker, though more robust. In profile the mesonotum and scutellum very feebly convex, almost straight. The epinotum is lower and almost straight, as long as the straight declivity. Petiole, postpetiole and gaster as in worker.

Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: Six females and ten workers. The workers show considerable variation in colour.

This species differs from *X. turneri* Forel in colour and in the sculpture of the nodes and gaster. The posterior border of the head is straight, not strongly concave. The eyes are placed at the middle not before the middle of the sides of the head. The petiole is broader in front than behind. The specimens are larger than those of *X. turneri* var. *fuscipes* Viehmeyer, and the petiole and the postpetiole are broader, and the sculpture is different.

Types: Holotype worker in collection at C.S.I.R., Canberra.

Genus DACRYON Forel 1895.

DACRYON MARGINATUS sp. nov. (Text-figs. 26-29.)

Worker.

Length, 4.5-5 mm. Head, antennae, thorax, petiole and postpetiole rich red, gaster darker, more reddish brown; legs brownish with the coxae and tarsal joints reddish; eyes, margins of head, thorax and petiole black.

Mandibles finely longitudinally striate; head densely and microscopically punctate. There are seven longitudinal ridges between the frontal carinae, and these ridges extend to the occipital border. Antennae, legs, neck, thorax, petiole, postpetiole and gaster microscopically punctate. There are a few longitudinal ridges on the thorax and nine coarser ridges on the postpetiole. First segment of the gaster is finely longitudinally striate.

Hair yellowish, confined to the clypeus and apex of the gaster. Pubescence greyish, adpressed, abundant on the funiculus.

Head very slightly longer than broad, with the sides feebly convex, occipital border feebly concave, the angles rounded. Mandibles triangular, with five sharp teeth; clypeus almost straight, with a slight incision in the centre; frontal area hardly noticeable; frontal carinae widely separated, raised and covering the insertions of the scapes, and extending back almost to the occiput; scape short, extending beyond the eyes by their width; first segment of the funiculus as long as the two following, second to seventh as broad as long, the remaining three segments thickened, giving the appearance of a club, the apical segment longer than the preceding but not as long as the two preceding together; eyes large, convex, placed at the middle of the sides.

Thorax is almost twice as long as the broadest part, which is the anterior border of the pronotum. Pronotum and mesonotum strongly margined, with anterior border convex, the pronotal angles produced forwards and outwards as blunted teeth; the sides as far as the mesonotal region almost straight. At that point on each side there is a short triangular tooth, after which the dorsum narrows to half the width of the anterior border of the pronotum. Meso-epinotal suture is deep. The strongly margined epinotum is longer than broad, with convex sides and feebly concave posterior border. The posterior corners are produced in two long-blunted spines, directed outwards and backwards, almost as long as their interval. In profile the pro-mesonotum is strongly convex, the mesonotal tooth just noticeable. The epinotum is feebly convex, about twice as long as the straight declivity. The epinotal spines almost as long as the declivity, directed upwards and slightly backwards, the edge facing the dorsum straight, the other edge convex.

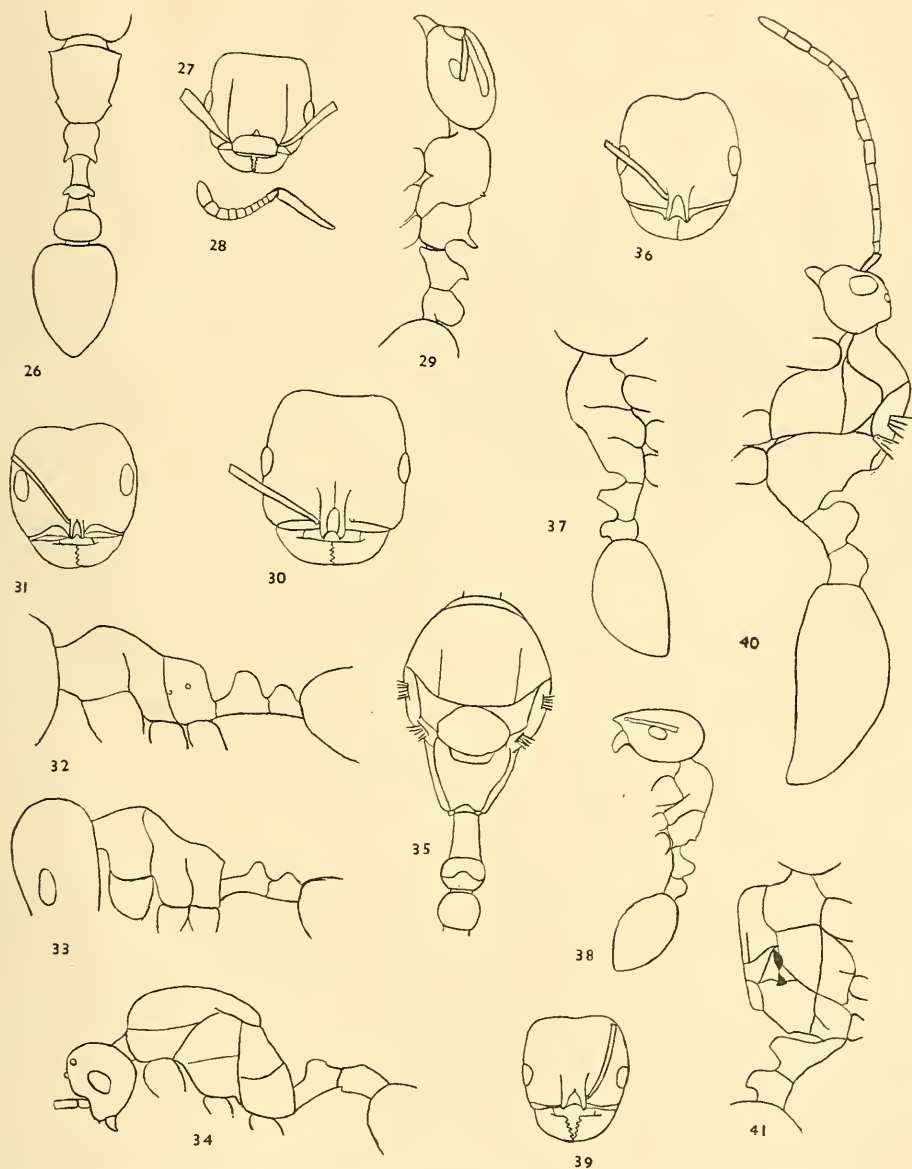
Petiole broader than long, oval, the margined dome is convex and produced behind in two spines which are directed slightly upwards as well as backwards. In profile longer than high, wedge-shaped. The anterior face is straight, and sloping inwards to the apex of the node and terminating above in a short, sharp spine. Dorsum almost missing, the posterior face concave. Postpetiole broader than long (one and a half times), with convex borders. In profile it is longer than the petiole, dome-shaped; the anterior face almost straight, and parallel to the anterior face of the petiole; the dorsum and the

posterior face convex. Gaster ovate. Legs short and robust, the femora very strongly thickened, the tibiae also thickened but not so much.

Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: Three specimens of worker.



Text-figures 26-41.

26-29. *Dacryon marginatus* sp. nov. 26. Worker, dorsal view. 27. Worker, head. 28. Worker, funiculus. 29. Worker, lateral view.

30-35. *Monomorium (Holcomyrmex) armstrongi* sp. nov. 30. Major worker, head. 31. Minor worker, head. 32. Major worker, lateral view. 33. Minor worker, lateral view. 34. Male, lateral view. 35. Female, dorsal view.

36-41. *Monomorium (Holcomyrmex) niger* sp. nov. 36. Major worker, head. 37. Major worker, lateral view. 38. Minor worker, lateral view. 39. Minor worker, head. 40. Male, lateral view. 41. Female, lateral view.

Species nearest to *D. ferruginea* Clark but distinguished by the clear black margins on head, thorax and petiole, the sculpture and the colour. The scape is shorter, the petiole broader than long, the postpetiole broader, and in profile the nodes are quite distinct.

Type: Holotype worker in collection at C.S.I.R., Canberra.

Tribe SOLENOPSIDINI Forel 1913.

Genus MONOMORIUM Mayr 1855.

Subgenus HOLCOMYRMEX Mayr 1878.

MONOMORIUM (HOLCOMYRMEX) ARMSTRONGI sp. nov. (Text-figs. 30-35.)

Worker major.

Length, 6.8-7.2 mm. Black; mandibles and front of head more brownish black; articulations of the legs, the tarsal segments, apex of gaster, tip of the apical segment of the funiculus reddish.

Mandibles smooth and shining with a few small punctures; clypeus smooth with scattered punctures; head smooth behind, but in front are fine longitudinal striae which are coarser between the frontal carinae. Thorax reticulate-punctate, and also has longitudinal fine striae which have a circular direction on the pronotum and a transverse direction on the epinotum; petiole and postpetiole densely and finely punctulate; gaster very finely and densely reticulate.

Hair yellowish, long, erect, sparsely scattered throughout, shorter and sub-erect on the legs. Pubescence very short and fine, confined to the funiculus.

Head large, slightly longer than broad, almost as broad behind as in front, with sides convex and the occipital border slightly concave, distinctly excised in the middle, corners broadly rounded. Mandibles large, triangular, with five sharp teeth. Clypeus is narrow on the sides, but the central portion is raised and bordered by two flattened carinae which are produced forward in two sharp teeth. The interval between the teeth is concave. Close to the outer side of these teeth is a much smaller tooth; frontal carinae short and prominent, diverging at their posterior fourth, but parallel on anterior three-quarters of their length; frontal area large, impressed with a narrow frontal groove extending back as far as the level of the eyes; scape not thickened towards apex and extending to the posterior quarter of the head; first segment of the funiculus slightly longer than the second, all segments longer than broad. There is no club but the last three segments are large, twice as long as broad, the apical slightly longer than the second last; eyes large but very flat, placed about the centre on the sides of the head.

Thorax broadest through the pronotum which is only half as broad as the head; pronotum as broad as long, convex in all directions; promesonotal suture not distinct; mesonotum short, broader than long, broader in front than behind with almost straight sides; meso-epinotal suture impressed; epinotum about two-thirds as broad as the pronotum, slightly longer than broad, with the sides straight and almost parallel. There are two blunt tubercles directed upwards, towards the middle of the posterior border of the epinotum, one each side of a concave depression. In profile the pro-mesonotum is rather conical with the dorsal part of the mesonotum and the epinotum much lower and sloping downwards towards the petiole. The dorsum of the epinotum is feebly convex and slightly longer than the almost straight and vertical declivity.

Petiole pedunculate; the dorsum almost square, but the whole node is about twice as long as broad. Postpetiole almost circular, very slightly broader than the petiole. In profile the petiole is dome-shaped, with anterior face very feebly convex, the anterior angle sharp, the dorsum, which is half as long as the base of the petiole, is feebly convex and rounded into the posterior convex face. Postpetiole lower, dome-shaped, and convex on all sides. Gaster large, elliptical. A small sting is exposed in some examples. Legs long and robust.

Worker minor.

Length, 5.7-6.2 mm. Colour and pilosity as in major.

Sculpture as in major but much finer. This is especially the case with the striae of the thorax, which are merely indicated. Head as in major though proportionately smaller, and the scapes very slightly longer. Thorax as in major but the dorsum of the epinotum slightly longer, and the tubercles on the posterior border are missing. Legs long and slender. Rest as in major.

Female.

Length, 10 mm. Colour of major but the front of the head and the mandibles bright red and the funiculus is wholly black.

Sculpture of the head as in major but coarser; pronotum, mesonotum and scutellum strongly striate-rugose longitudinally; epinotum transversely striate-rugose; petiole almost smooth, reticulate-punctate on the sides; postpetiole with fine circular striae and a very finely and densely reticulate-punctate ground sculpture; gaster reticulate.

Hair reddish, longer and more abundant throughout.

Head broader than long, with feebly convex sides and almost straight occipital border. Mandibles as in worker, but the apical tooth is extremely long. Scape extends to the posterior fifth of head. Ocelli pearl white and large. Rest of head as in worker.

Thorax one and a half times as long as broadest part, which is a line through the middle of the mesonotum; pronotum short, not noticeable from above; mesonotum massive, broader behind than in front with convex borders. The parapsidal furrows are deeply impressed. Scutellum is broader than long, broader in front than behind; all thoracic sutures deeply impressed; epinotum as long as broad at anterior border, which is twice as broad as the concave posterior border. There are no spines or tubercles. In profile the pronotum is vertical; the mesonotum and scutellum almost flat or very feebly convex; epinotum almost straight and sloping; the declivity as long as the dorsum.

Petiole is slightly broader than long, convex on all faces. There is a slight hollow in the centre near the posterior border. In profile the anterior face is convex, the dorsum very feebly convex and the posterior face feebly concave. Dorsum of the post-petiole is reduced almost to a straight line, but it presents the anterior face which is as long as broad and convex in all directions; in profile wedge-shaped, with a long, sloping straight anterior face meeting the straight almost vertical posterior face in a point. Gaster large, elongate. Legs long.

Male.

Length, 5.1 mm. Entirely black except for the tarsi and the apex of the gaster, which are reddish.

Hair black, long, abundant throughout. Pubescence greyish, short, confined to the funiculus and the tarsi.

Head and promesonotum irregularly, closely and finely shagreened; scutellum has in addition some fine longitudinal striae; epinotum reticulate-punctate with a few fine transverse striae; petiole, postpetiole and first segment of the gaster finely densely reticulate-punctate; rest of gaster more transversely striate.

Head longer than broad, with the sides and occipital border strongly convex. Mandibles rather large, furnished with denticles. Clypeus appears to be rounded in front, but it is difficult to see the front of the head, which is concealed by long black hair. Scape is short, reaching to the eyes, which are very large and occupy most of the side of the head. All segments of the funiculus are much longer than broad, except the first, which is short, and just slightly longer than broad. Ocelli are pearl white, hemispherical, and large.

Pronotum short and not visible from above; mesonotum longer than broad, with the sutures indistinct; scutellum as long as broad, broader in front than behind; epinotum as long as broad in front, where it is twice as broad as the posterior border.

Petiole longer than broad, with feebly convex borders, the corners broadly rounded; in profile rather bluntly conical, with sloping, feebly concave anterior border and feebly convex posterior border; postpetiole slightly longer than the petiole, slightly longer than broad, and slightly broader behind than in front, the lateral borders feebly convex; in

profile very much lower than the petiole, forming merely a low convexity. Gaster elliptical. Legs long and slender.

Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: Large complete series of all forms. Wheeler described the major worker of *Holcomyrmea whitei*, the first of the subgenus to be found in Australia. His major worker is much smaller than the minor worker of *H. armstrongi* and the colour is red and yellow. There is no possibility of confusing either of the following two species with *H. whitei* Wheeler.

Type: Holotype worker major, and series of worker minor, male and female, in collection at C.S.I.R., Canberra.

MONOMORIUM (HOLCOMYRMEX) NIGER sp. nov. (Text-figs. 36-41.)

Worker major.

Length, 5.2 mm. Entirely black.

Except for the smooth frontal area, the anterior third of the head and the portion between the frontal carinae are finely striate. The rest of the head is smooth with scattered microscopic piligerous punctures. Thorax is shining, rather smooth with scattered microscopic punctures and a few traces of striae, which are longitudinal on the pronotum and transverse on the epinotum; petiole smooth; postpetiole very finely transversely striate and with traces of reticulation; gaster feebly shagreened.

Hair reddish, short, erect on head; a few long hairs on the petiole and postpetiole; longer hairs on the gaster but none on the thorax. Pubescence fine, reddish, confined to the legs and antennae.

Head slightly longer than broad, as broad behind as in front, with sides feebly convex and the occipital border concave with a marked incision at the middle of the posterior border. Mandibles large, triangular with five strong teeth; clypeus narrow on sides, the central portion raised and bordered by two carinae which are produced forward as two stout blunted teeth. Flanking the outer side of each tooth is a sharper slightly shorter tooth. Frontal carinae are short diverging outwards slightly; frontal area large and distinct, the suture between it and the central portion of the clypeus deep. Scape extends to the posterior fifth of the head, thickened very slightly towards the apex; first segment of the funiculus longer than the second, the rest as long as broad, except the three apical segments, which are thickened, and at least twice as long as broad, the apical segment slightly longer than the second last; eyes moderately large and very flat, placed at the centre of the sides of the head.

Thorax twice as long as broad though the pronotum, with both sutures obsolete, rounded in front, and constricted at the region of the mesonotum, where there is a deep depression. The meso-epinotal area is reduced to half the width of the convex pronotum and has the sides almost straight, and the posterior border concave. There is a small tubercle at each posterior angle of the epinotum. In profile the dorsum of the pronotum convex; the dorsum of the meso-epinotum almost straight and sloping; the short epinotal declivity feebly concave.

Petiole and postpetiole equal, as broad as long with feebly convex borders. In profile the petiole is as high as long, with sloping, feebly concave anterior face, feebly convex dorsum which is rounded into the almost vertical posterior face. The postpetiole is much lower and forms a dome with the posterior face feebly concave. Gaster ovate. Legs long and slender.

Worker minor.

Length, 4 mm. Black, but the anterior border of the head, mandibles, joints of legs and tarsi brownish. Hair similar to that of major.

Sculpture as in major but the sculpture of the pronotum is more reticulate and the epinotal declivity transversely striate; petiole and postpetiole reticulate-punctate; gaster smooth with scattered elongated punctures.

Head as in major but the scape is slightly longer, and the eyes a little more convex and placed slightly nearer to the anterior border of the head. Thorax is similar to that of major but proportionately shorter with the pronotum larger and more rounded. The tubercles of the epinotum are not noticeable from above. In profile the dorsum is much flatter, almost straight. The epinotal tubercles are visible, giving the declivity the appearance of being concave, though actually the upper half is straight and sloping, the lower half bulges outwards towards the petiole convexly.

Petiole twice as broad as long, the borders almost straight; postpetiole with the dorsum reduced to a convex line, showing a full view of the almost square anterior face. In profile the petiole is higher than long, with sloping almost straight anterior face, convex dorsum, and feebly convex posterior border. Postpetiole as in major, low and dome-shaped.

Female.

Length, 6.5-7 mm. Black with mandibles and front of head yellowish red. The gaster varies from black with dull reddish bands at the borders of the gastric segments to dull red with black borders to the gastric segments.

Front of head except for the smooth frontal area finely longitudinally striate-rugose. The posterior half of the head and the thorax have scattered small elongated piligerous punctures, which are denser on the head than on the thorax. The epinotum is finely transversely striate. Petiole and postpetiole feebly shagreened on top, but the pedicel is densely microscopically reticulate-punctate. Gaster smooth with sparse elongated punctures. Pilosity as in worker but more abundant.

Head as in major but is as broad as long. The frontal carinae diverge further behind and are wider apart. The carinae of the clypeus are more pronounced, further apart in front and terminating in larger teeth. The eyes are comparatively smaller. The ocelli brownish, small and convex.

Pronotum hardly visible from above; mesonotum massive, as broad as long, feebly convex; the parapsidal furrows deeply impressed; scutellum circular, very slightly broader than long; epinotum much lower and very sloping, so that at times it is difficult to distinguish the dorsum from the declivity; dorsum as long as broad, broader behind than in front. There is a slight margin between the dorsum and the declivity with a small blunt tubercle at each corner. In profile the pronotum is vertical, the mesonotum and scutellum very flat, the scutellum overhangs the epinotum slightly. Dorsum of the epinotum straight, as long as the slightly concave declivity.

Petiole is twice as broad as long, excised on top in the middle; postpetiole twice as broad as long, longer than the petiole, elliptical and slightly concave on top. In profile the petiole is higher than long, the anterior face convex, rounded into the feebly convex dorsum, posterior face straight and vertical; postpetiole lower, anterior face and dorsum form one convexity while the posterior face is concave.

Male.

Length, 7 mm. Black; joints of legs and gaster, except for the black basal segment, yellowish red. The reddish part of the gaster varies in extent among individuals of the same nest.

Head longitudinally striate on those parts where the sculpture is not concealed by hair; dorsum and sides of thorax coarsely reticulate-punctate; petiole and postpetiole densely and microscopically punctate. There are some transverse striae on the posterior face of the petiole. Gaster is smooth with traces of shallow punctures on the first segment, and very fine reticulation on the other segments.

Hair reddish and long on gaster. It is black on the head and thorax, copious, especially on the head where it is longest.

Head as broad as long, with strongly convex sides and occipital border. Mandibles are narrow, with three large strong teeth; clypeus rounded in front, apparently without any teeth or spines; scape short, extending to the posterior border of the eyes; first segment of the funiculus slightly longer than broad, second very long, fully three times

as long as first, all the remaining segments at least twice as long as broad; eyes very large, hemispherical, occupying most of the sides of the head; ocelli pale yellow, hemispherical, rather large.

Pronotum from above small and rounded in front; mesonotum very large, as long as broad, with convex sides; scutellum circular; epinotum very short, and from above it is similar to that of the female, but the two tubercles on the posterior border are more distinct. In profile the pronotum and mesonotum form a hump, with the top of the hump about the pro-mesonotal suture. The epinotum is much lower than the scutellum which slightly overhangs it. The dorsum of the epinotum is longer than the feebly concave declivity, the faces separated by the small tubercles.

Petiole as broad as long, almost circular. In profile as high as long, dome-shaped, with the faces forming an even convexity; postpetiole almost the same size, but slightly broader behind than in front. In profile it consists of an evenly convex low hump on the pedicel. Gaster long and slender. Legs long and slender.

Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: Large series of all forms.

This species resembles *H. armstrongi* but is easily distinguished by the size and sculpture. The scape of the major is longer and the petiole and postpetiole are alike, whereas they differ greatly in *H. armstrongi*. The male and female are separated from those of the other species in colour and sculpture, shape of the nodes. The male is, moreover, relatively much larger.

Type: Holotype worker major, and series of worker minor, male and female, in collection at C.S.I.R., Canberra.

Genus SCHIZOPELTA gen. nov.

Worker.

Monomorphic. Mandibles triangular, moderately large with few strong teeth. Maxillary and labial palpi two segmented. Clypeus narrow, but produced forward in two long prongs, which are slightly longer than broad at their base. The exterior border of the projecting part is convex, and the inner border concave. The frontal carinae are straight and almost parallel. Between these frontal carinae is a deep furrow, bordered on each side by a carina, and this whole frontal area is produced forward over the clypeus, and terminates in two small teeth. In profile the frontal carinae are raised, and the clypeus extends over the mandibles. The antennae have twelve segments. The first segment of the funiculus is long, the apical three segments are also long and form an indistinct club. Eyes moderately large and convex, placed about the middle of the sides. No ocelli. The head is rather square and broader than the thorax. There are no thoracic sutures, and the pronotal area is strongly convex, and twice as broad as the epinotal area. The pronotum is rounded in front, the epinotum armed with moderately long teeth. The petiole is almost square, hardly pedunculate. The postpetiole is also cubic but larger than the petiole, very close to the petiole and gaster so that it is very difficult to see the stalk. Gaster ovate. Legs robust, the femora and tibiae hardly thickened. The anterior tibiae have pectinate spurs, the middle and hind tibiae without spurs. The claws simple.

Pseudogyne.

Slightly larger than the worker. Head similar to that of worker and there is no trace of ocelli. Thorax has no wing sclerites but the other sutures are well developed. The pronotum is more angular in front, and the mesonotum is large, and slightly higher than the rest of the thorax. The epinotal spines are a little shorter than those of the worker, and the dorsum of the epinotum is strongly concave. Rest as in worker.

Male.

Mandibles short and narrow. Clypeus raised and overhanging the mandibles. Instead of the forked projections, found in the worker and female, the clypeus has a deep notch in the middle and this is margined by a carina which extends to the posterior

border of the clypeus. The frontal carinae are raised and almost parallel. There is a frontal groove and a small but deep depression just in front of the anterior ocellus. Ocelli large and the eyes very large and convex. The articulations of the scapes are exposed. The scape is slightly more than twice as long as broad. The funiculus is twelve segmented with the first segment short. The parapsidal furrows are impressed. The anterior wings have open radial cells, single closed cubital cells and a small discoidal cell. The venation of the posterior wings is very restricted. The nodes are low and dome-shaped. The fore tibiae have pectinate spurs, middle and hind tibiae without spurs. Claws simple.

Genotype: Schizopelta falcata sp. nov.

SCHIZOPELTA FALCATA sp. nov. (Text-figs. 42-47.)

Worker.

Length, 3-3.5 mm. Reddish brown with legs, antennae and gaster more yellowish; eyes black and the front of the head very dark brown, almost black.

A yellowish short pilosity is confined to the clypeus, antennae, tarsi, tibiae and apex of gaster.

The *head* is covered with small shallow punctures, slightly elongated. The spaces between the punctures are smooth and shining. The dorsum of the pronotum has similar sculpture. The rest of the thorax, the petiole and the postpetiole densely microscopically punctate. Gaster smooth and shining.

Head slightly longer than broad, with convex sides and concave posterior border. Mandibles, hidden by the clypeus, are moderately large, with four stout teeth. Clypeus is narrow, but produced forward in two long prongs, which are slightly longer than broad, with convex outer and feebly concave inner borders. Frontal carinae are straight and parallel. Between these carinae is a deep furrow, bordered on each side by a carina which terminates in a small tooth. Scapes extend to the middle of the eyes. The first segment of the funiculus is almost as long as the two following together, second to eighth almost as broad as long. The apical segment of an indistinctly three-segmented club is longer than the two preceding segments together. Eyes moderately large, rather flat, are placed at the middle of the sides.

Thorax not quite twice as long as broad; pronotum broader than long, strongly convex in all directions. The pro-mesonotal suture is hardly present in most examples. The meso-epinotum is half as broad as the pronotum, with no trace of meso-epinotal suture. The epinotum terminates in two long teeth, directed upwards and backwards, the space between concave. In profile the dorsum is feebly convex and in most examples there is no trace of sutures.

Petiole is hardly pedunculate, slightly longer than broad, and very slightly narrowed in front, with feebly convex sides and straight anterior and posterior borders; post-petiole more rectangular, longer than broad, the anterior border feebly convex, the remaining borders straight and the corners bluntly rounded. In profile the petiole is slightly higher than the postpetiole. The petiole is slightly higher than long with feebly concave anterior face rounded into the feebly convex dorsum. The postpetiole is cubic with the upper corners rounded into the feebly convex dorsum. The basal segment of the gaster occupies most of the gaster. Legs robust.

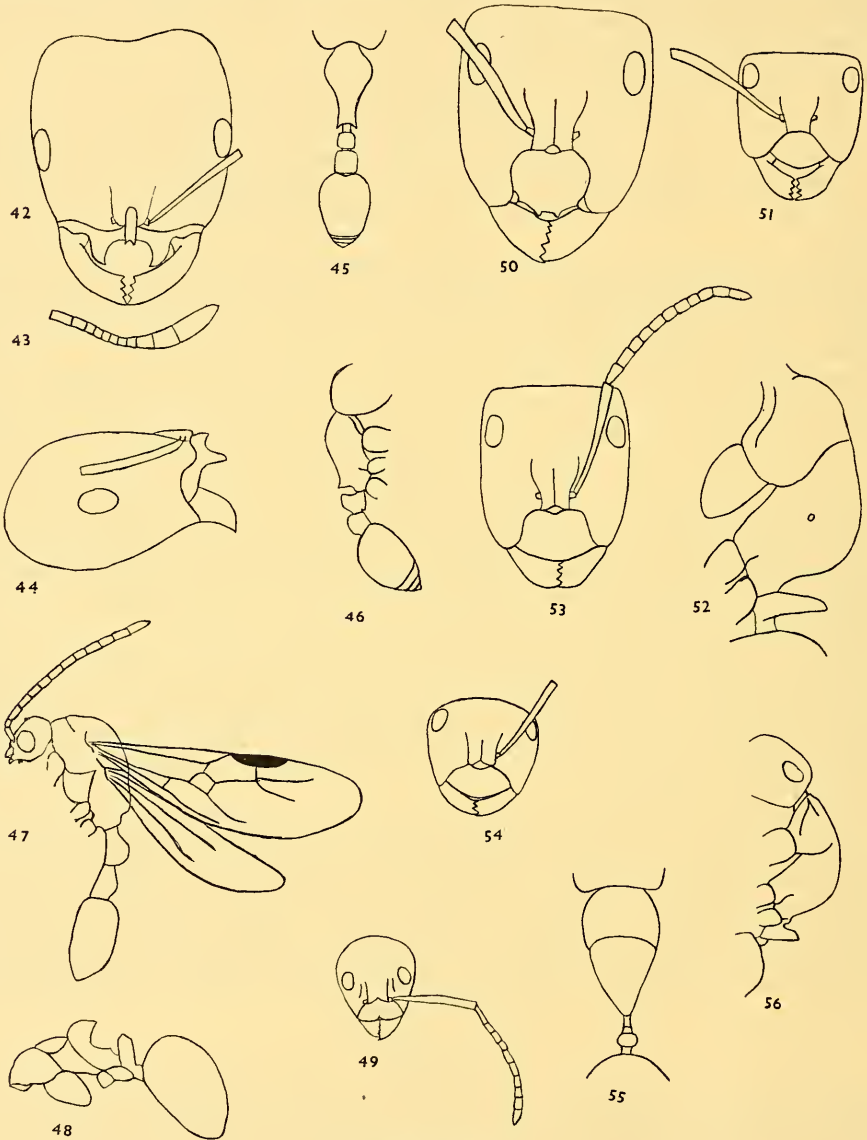
Pseudogyne.

Length, 4.2 mm. Head except for a dull red spot on the vertex, deep black. Antennae reddish yellow; thorax, petiole and postpetiole brownish red; the lower margin of the sides of the thorax, the coxae and the upper half of the femora of the anterior pair of legs black; remaining part of the front legs, the other four legs, and the gaster light yellowish red.

The sculpture of the head as in the worker but the flattened frontal carinae are finely longitudinally striate. The pronotum and mesonotum have scattered elongated punctures. The rest of the thorax, petiole and postpetiole are densely and microscopically punctate. Gaster smooth and shining.

Head as in worker, but it is square with the sides and occipital border almost straight, and the posterior corners rounded. Eyes flat, moderately large, are placed at the centre of the sides; no trace of ocelli.

Thorax with very distinct sutures; pronotum three times as broad as long, with convex anterior border and almost straight sides. The anterior angles are rather sharp. Mesonotum is raised, large, twice as long as broad; metanotum depressed slightly, narrow and indistinct; epinotum as broad as long, slightly broader behind than in front. The



Text-figures 42-56.

42-47. *Schizopelta falcata* sp. nov. 42. Worker, head. 43. Worker, funiculus. 44. Worker, head in profile. 45. Worker, dorsal view. 46. Worker, lateral view. 47. Male, lateral view.

48, 49. *Dolichoderus (Hypoclinea) armstrongi* sp. nov. 48. Worker, lateral view. 49. Worker, head.

50-52. *Camponotus (Myrmogonia) sanguinea* sp. nov. 50. Major worker, head. 51. Minor worker, head. 52. Major worker, thorax, lateral view.

53-56. *Camponotus (Myrmogonia) armstrongi* sp. nov. 53. Major worker, head. 54. Minor worker, head. 55. Minor worker, dorsal view. 56. Minor worker, lateral view.

epinotal spines are shorter than those of the worker, the dorsum of the epinotum concave. In profile the pro-mesonotum evenly convex, a little flattened at the pro-mesonotal suture. Dorsum of the epinotum is flat, nearly twice as long as the declivity; epinotal spines stout, directed upwards and slightly backwards; petiole, postpetiole and gaster as in worker.

Male.

Length, 3.2 mm. Entirely black, except for the tips of the mandibles and the tip of the gaster which are dull reddish brown.

Hair yellowish, long, and abundant throughout.

Densely reticulate punctate on head, petiole and postpetiole. The thorax is more coarsely rugose and the gaster smooth.

Head very slightly longer than broad across the eyes, with the sides strongly convex, and the occipital border short and almost straight. Mandibles short and narrow, dentate; clypeus raised and overhanging the mandibles, deeply notched in the middle; frontal carinae straight and raised above the articulations of the scapes. Frontal groove is faint but there is a deep pit just before the anterior ocellus. Scape is short, about three times as long as broad; first segment of funiculus almost as broad as long, all other segments twice as long as broad; eyes large hemispherical; ocelli distinct.

Thorax slightly more than twice as long as broad. The pronotum is hardly noticeable from above; mesonotum very large. The parapsidal furrows are impressed, but difficult to see because of the coarse sculpturation. Scutellum is broader than long, broader in front than behind; epinotum much lower than the scutellum, as broad as long, broader in front than behind, with almost straight sides and posterior border. There are no spines on the posterior border of the dorsum but merely sharp corners. The small spine at the base of the epinotal declivity is present, as in worker. Petiole and postpetiole are much more elongated and more rounded than in worker. In profile these are low humps. Legs rather long and slender.

Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: One male, one pseudogyne, and a large series of workers. The pseudogyne was taken with four workers from an incipient colony, some time after the male and a large series of workers had been examined from the same area.

Type: Holotype worker and allotype male in collection at C.S.I.R., Canberra.

Subfamily DOLICHODERINAE Forel 1878.

Genus DOLICHODERUS Lund 1831.

Subgenus HYPOCLINEA Mayr.

Hypoclinea Mayr, *Verh. Zool. Bot. Ver. Wien.*, 5, p. 377, 1855.

Hypoclinea sens. str. Wheeler, *Psyche*, 42 (1), p. 68, 1935.

DOLICHODERUS (HYPOCLINEA) ARMSTRONGI sp. nov. (Text-figs. 48, 49.)

Worker.

Length, 3.5-4 mm. Head, thorax and node rich brownish red (the head just slightly darker than the thorax and node); eyes and margins of the node black; margins of the thorax brownish black; antennae and legs light brownish red. In some examples the femora are light yellowish red. Gaster is deep orange or yellowish red.

Mandibles smooth; head shining, coarsely reticulate-punctate, the bottoms of the punctures smooth and shining. (There is no fine reticulation between the punctures as in *H. reflexus*.) Antennae are smooth; thorax and node reticulate-punctate but on the node the sculpture is finer. The epinotal declivity is smooth (it is feebly transversely striate in *H. turneri*). Gaster is very finely reticulate (reticulate punctate in *H. reflexus* and *H. turneri*). Legs are smooth.

Hair greyish yellow, long, erect on head, mandibles, clypeus and antennae, on other parts of the body there is very little hair. No pubescence. (Abundant pubescence covering the sculpture of the gaster in *H. turneri*.)

Head one-quarter longer than broad, convex feebly on the occipital border and strongly so on sides, widest just behind the eyes, narrowed greatly in front. Mandibles large, armed with three strong teeth in front and about five or six denticles behind; clypeus almost straight on anterior border with a deep longitudinal impression in front, the posterior border is very indistinct; frontal area not noticeable in most specimens; frontal carinae raised, very slightly diverging behind, slightly longer than their distance apart. There is a trace of a scrobe at the side of the carinae, and extending as far as the end of these carinae. (This appears to be absent in both *H. reflexus* and *H. turneri*.) Scape, as in *H. reflexus*, extends beyond the occiput by a quarter of its length. (Slightly beyond occiput in *H. turneri*.) Eyes globular, placed slightly behind the middle of the sides. First segment of funiculus twice as long as the second, which is shorter than the third. (In *H. reflexus* the first segment is one-fifth longer than the second, which is longer than the third.)

Thorax twice as long as broad; pronotum nearly twice as broad as the rest of the thorax, one and two-thirds broader than long with the sides feebly convex and the anterior angles bluntly produced; mesonotum as long as broad, broader in front than behind, with the sides feebly convex and margined; epinotum one and three-quarters longer than broad, with the sides and posterior border straight. In profile the dorsum of the pronotum and of the mesonotum are convex, with the pronotum slightly longer than the mesonotum. Dorsum of the epinotum is very high, convex, and raised behind where with the very concave declivity it forms a sharp point. The dorsum of the epinotum overhangs the declivity by half its length. At the base of the declivity, just in front of the node, there is a small spine. Node massive, in profile more than twice as high as long, with the faces straight almost to the top, where abruptly they slope in to meet at a blunt point. From above the node is twice as broad as long. Gaster oval. Legs robust.

Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: About forty workers which show very little variation in colour and size.

This species is near both *H. turneri* Forel and *H. reflexus* Clark, but differs slightly in the structure of the thorax and node, and clearly differs in the points indicated in the description.

Type: Holotype worker in collection at C.S.I.R., Canberra.

Subfamily FORMICINAE Lepeletier 1836.

Tribe CAMPONOTINI Forel 1893.

Genus CAMPONOTUS MAYR 1861.

Subgenus MYRMOGONIA Forel (Mann emend. 1921).

CAMPONOTUS (MYRMOGONIA) SANGUINEA sp. nov. (Text-figs. 50-52.)

Worker major.

Length, 8.3 mm. Mandibles and anterior border of head black or brownish black; clypeus dark reddish brown; frontal carinae black; insertions of scapes reddish yellow; antennae dark brown with the tip of the funiculus lighter; head, thorax and node dull blood red, the epinotum is darker, more brownish; legs reddish brown with tibiae and tarsi darker; first segment of the gaster red, second brownish red, rest of gaster brown.

Mandibles with scattered elongated punctures; clypeus finely, densely reticulate-punctate; head very finely and densely striate transversely. The striae are joined together to form a wide meshed reticulation. Thorax is striate punctate, on pronotum more transversely arched, and coarser on the meso-epinotum; node transversely finely striate; gaster transversely striate.

Hair long, erect, reddish, abundant on mandibles, epinotum node and gaster.

Head slightly longer than broad, with the sides almost straight, and the occipital border straight, corners abrupt. Mandibles thick triangular, with five strong teeth; clypeus large, not carinate, the anterior border rounded and furnished with two large blunt teeth in front; frontal area small, rhomboidal; frontal carinae elevated, very

distinct and diverging behind; frontal groove distinct. Scape extends to the posterior border of the head. Eyes moderately large, flat, are placed at the posterior third. Ocelli lacking but there is a pit in place of anterior ocellus.

Thorax nearly twice as long as the broadest part which is the pronotum; pronotum nearly twice as broad as long, rounded in front and with feebly convex sides. The pro-mesonotal suture is black and very distinct. Meso-epinotal suture very faint. Meso-epinotum is nearly twice as long as broad in front, narrowed so that it is about a quarter as broad behind as in front. In profile the dorsum of the thorax is flatly convex with the epinotal declivity slightly concave. Node very transverse, from above it presents a very narrow surface. In profile nearly three times as high as long, with slightly convex anterior face, which meets the vertical, straight posterior face in a sharp point. Gaster oval. Legs moderately long and strong.

Worker minor.

Length, 5.1 mm. Colour much more brownish and there is considerable variation. Often the posterior part of the head is black, and the dark area varies in extent. The node and legs in some species are very dark brown.

Sculpture similar to that of major.

The hair is much more noticeable on the thorax, more abundant on the whole body than in case of major.

Head as broad as long, slightly broader behind than in front, with the sides and the posterior border almost straight. There are no noticeable teeth on the anterior border of clypeus and the teeth of the mandibles are longer and sharper. The eyes are larger, more convex, placed at the posterior corners of head. The scape is longer, extending beyond the occiput by half its length. The thorax like that of major, but the pronotum is relatively broader, the meso-epinotum longer and more tapering, appearing to end in a point. The node is thicker in profile, about twice as high as long. Rest as in major.

Collected by F. Heugel.

Material examined: Twenty minor workers and a major worker.

This species is nearest to *M. sponsorum* Forel, but is larger and differs in colour. The node of the major is much thinner, the clypeus is more rounded in front and the eyes placed further back.

Type locality: Broome, N.W. Australia.

Type: Holotype worker major in collection at C.S.I.R., Canberra.

CAMPONOTUS (MYRMOGONIA) ARMSTRONGI sp. nov. (Text-figs. 53-56.)

Worker major.

Length, 6.8 mm. Head and gaster shining black, with the antennae slightly lighter and the articulation of the scape yellowish; thorax, node and legs, except the tarsi and the apex of the tibiae, bright brownish red; apex of tibiae and the tarsi more brownish.

Head, thorax, node and gaster very finely and densely striate transversely, finer on the gaster which is shining and almost smooth in parts. The striae are joined together to form a wide meshed reticulation. There are also a few scattered punctures on the front of the head.

Hair yellowish, long, sparse on the head and thorax, more abundant on clypeus, node and gaster.

Head rectangular, one-third longer than broad, with the sides almost straight, the occipital border straight and the posterior angles abrupt. Mandibles furnished with four strong, sharp, teeth; clypeus large, feebly carinated, the anterior border rounded and faintly crenulated in centre; frontal area feebly marked; frontal carinae raised, very distinct, and diverging behind; frontal groove distinct, reaching to the end of the frontal carinae. Scape reaches just beyond the occiput; first segment of funiculus longer than second, all segments twice as long as broad; eyes moderately large, rather flat, placed at the posterior third of head; no ocelli but there is a slight pit in place of the anterior ocellus.

Thorax nearly twice as long as the broadest part, which is at the pronotum; pronotum one and a half times as broad as long, rounded in front, with feebly convex sides. On the front of the pronotum is a sharp semicircular ridge or margin which extends some way back along the sides. Pro-mesonotal suture is distinct; mesonotum broader than long; meso-epinotal suture feebly marked. The meso-epinotum is nearly twice as long as broad in front, compressed laterally behind so that the dorsum at the epinotum is reduced to a sharp ridge. In profile the whole dorsum of the thorax forms a single strong convexity, with the pronotal region slightly flattened. The epinotal declivity is feebly concave with the stigmata near the base very distinct. Node twice as broad as long, elliptical. In profile thorn-like, twice as high as long, the anterior face convex, merging into the dorsum. The apex is sharp and the posterior face is straight and almost vertical. Gaster small and ovate. Legs robust.

Worker minor.

Length, 4.5 mm. Colour, sculpture and pilosity as in major.

Head as broad as long, broader behind than in front with convex sides and occipital border. The scape extends beyond the occiput by a third of its length. Eyes large, convex, are placed at the posterior corners of the head. The thorax as in major but the meso-epinotal suture is missing. All the rest as in the major worker.

Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: A large series of major and minor workers which shows very little variation.

The species is smaller than most Australian Myrmogonia and the vivid red thorax and shining black head and gaster readily distinguish it from all other species.

Type: Holotype worker major in collection at C.S.I.R., Canberra.

TRIBE MELOPHORINI Forel 1912.

GENUS MELOPHORUS Lubbock, 1883.

Melophorus Lubbock, *Journ. Linn. Soc. Lond.*, Zool., 17, p. 51, 188.

Melophorus sens. str. Wheeler, *Psyche*, 42, p. 70, 1935.

MELOPHORUS (MELOPHORUS) BRUNEA SP. NOV. (Text-figs. 57-65.)

Worker maxima.

Length, 4 mm. Dark brown with the thorax slightly lighter than the head and gaster; legs, antennae, mandibles, clypeus and cheeks more yellow.

Mandibles smooth; head almost smooth, very faintly reticulate on the sides of the clypeus, the reticulation tends to be transverse; thorax reticulate but slightly coarser than on the head, and the epinotum is almost reticulate-punctate; gaster smooth and shining with faint reticulations similar to those of the head.

Hair yellowish, long, erect on clypeus, shorter on the rest of the body. Pubescence yellowish, short, adpressed, confined to the antennae and legs.

Head, excluding the mandibles, as long as broad with very feebly convex sides and occipital border, the posterior corners rounded. Mandibles large, triangular, with four strong teeth; clypeus large, convex, rounded and entire on anterior border; frontal area triangular and distinct; frontal carinae short and parallel. Scape fails to reach the occipital border by twice its width; first segment of the funiculus as long as the two following, second shorter than the third, as broad as long, apical segment just slightly longer than the second last; eyes large, convex, placed at the middle of the sides; ocelli very small but distinct.

Thorax half as broad as the head, and nearly twice as long as broad; pronotum as broad as long, very convex in all directions; mesonotum almost circular; pro-mesonotal suture distinct. There is a rather broad interval between the mesonotum and epinotum and the stigmata of the dorsum are very distinct. Epinotum is less than half as broad as the mesonotum, almost square, with the sides and the posterior border straight. In

profile the pronotum and mesonotum form a single strong convexity. The dorsum of the epinotum is straight, slightly elevated behind. The epinotal declivity is abrupt and straight or feebly concave, twice as long as the dorsum. Node scale-like, from above it appears as a narrow transverse line; in profile three times as high as long with almost straight faces and pointed apex. Gaster large. Legs slender.

Worker media.

Length, 3.2 mm. Colour, sculpture and pilosity as in maxima.

Head slightly broader than long, with convex sides and occipital border. The scape extends just beyond the occipital border. In other respects the head is similar to that of maxima. The thorax differs merely in not having any noticeable interval between the mesonotum and epinotum. Rest as in maxima.

Worker minima.

Length, 2.1 mm. Black with faint metallic sheen; legs brownish black with the tarsi yellowish; mandibles, front of head and scape brownish; funiculus yellowish with the apical segments slightly darker. Whole body densely microscopically punctate. Hair silvery grey, most abundant on the gaster.

Head broader than long, the sides and occipital border convex. Mandibles triangular with sharp teeth of which the apical is by far the longest; clypeus large with the anterior border almost straight; frontal area triangular, very clearly indicated. There is a well-marked frontal groove. Frontal carinae are short and almost parallel. Scapes extend beyond the occiput by half their length; eyes extremely large, occupying most of the side of the head; ocelli small but distinct.

Thorax slightly more than twice as long as broad at the pronotum; pronotum three-quarters as wide as the head, slightly broader than long, convex in all directions; pro-mesonotal suture indicated; mesonotum one-quarter longer than broad, broader in front than behind, with the sides almost straight; meso-epinotal suture deeper than the pro-mesonotal suture; epinotum as long as the mesonotum, one and a half times as long as broad, very slightly broader behind than in front. In profile the pro-mesonotum forms a single moderate convexity. Dorsum of epinotum is almost straight and rounded into the straight declivity, which is almost twice as long as the dorsum. Node is elliptical, twice as broad as long, slightly broader behind than in front; in profile twice as high as long at the base, anterior face feebly convex, rounded into the convex dorsum, posterior face straight and vertical. Gaster small. Legs long and slender.

Female.

Length, 4.5 mm. Head dark brown with mandibles, front of head, antennae reddish brown; thorax dark brown with a patch of orange which varies greatly in extent in different examples—in most the posterior half of mesonotum and all the scutellum are orange; node and gaster dark brown; legs brownish yellow but much lighter than the antennae.

Sculpture as in maxima but smooth except on gaster where it is coarser than in worker and the reticulation has a transverse direction.

Pilosity as in maxima.

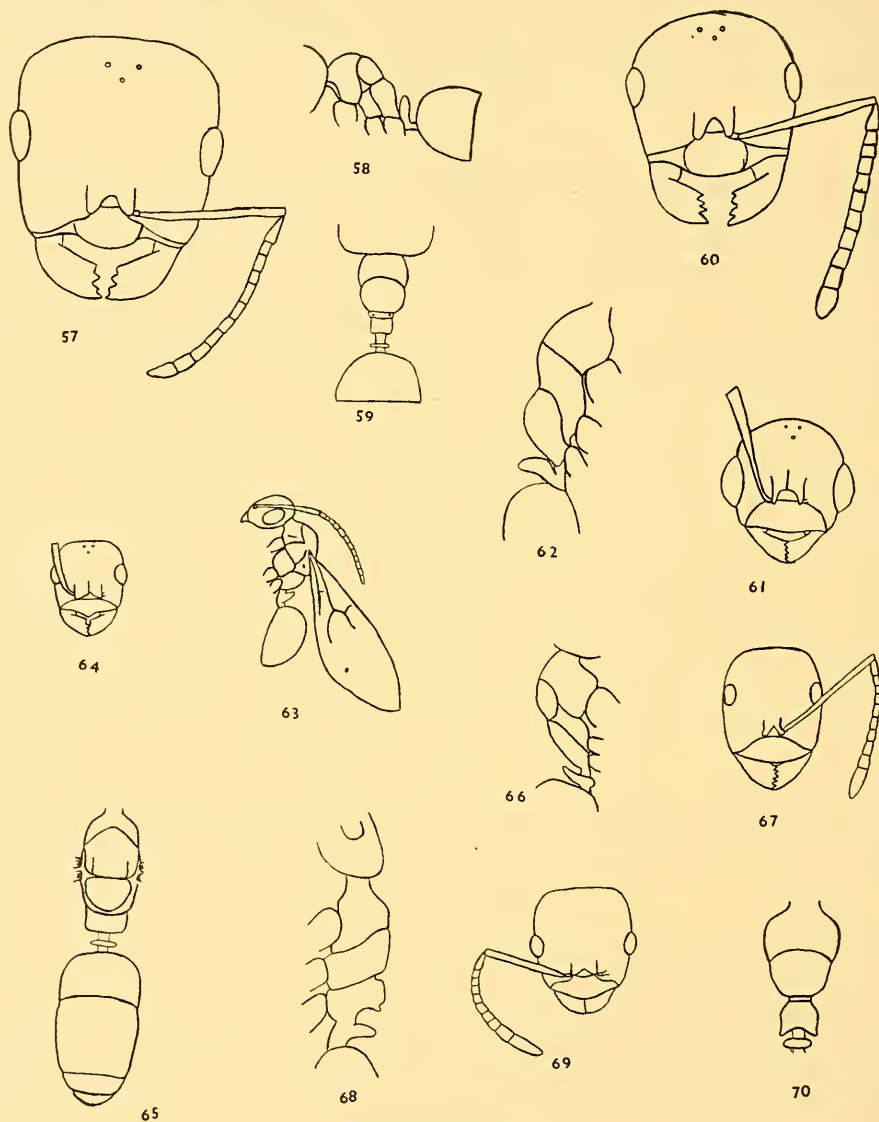
Head similar to that of maxima but slightly broader than long. Mandibles large, triangular, with four strong sharp teeth, the apical tooth very long, and the third tooth longer than second and fourth; clypeus produced to a blunt point in front; frontal groove very clearly marked; scape extends to the occiput; eyes large, convex, placed slightly behind the middle of the sides; ocelli brownish, large and convex.

Thorax nearly as broad as the head, almost twice as long as broad; pronotum from above reduced to a narrow convex strip; mesonotum large, as broad as long; parapsidal furrows deeply marked; scutellum very large, broader than long, slightly broader in front than behind; epinotum twice as broad as long, slightly broader in front than behind, sides and posterior border straight. In profile the pronotum is vertical, mesonotum and scutellum almost flat with a marked indentation between the mesonotum

and scutellum. The dorsum of epinotum is much lower than the scutellum, straight, one-third as long as the declivity, the posterior angle rounded. Node transverse, about six times as broad as long. In profile thorn-like, anterior face convex, posterior face concave and apex sharp. Gaster large. Legs slender.

Male.

Length, 2.1 mm. Black, legs brownish black with the joints and the tarsi lighter, mandibles reddish brown.



Text-figures 57-70.

57-65. *Melophorus (Melophorus) brunea* sp. nov. 57. Maxima worker, head. 58. Maxima worker, lateral view. 59. Maxima worker, dorsal view. 60. Media worker, head. 61. Minima worker, head. 62. Minima worker, lateral view. 63. Male, lateral view. 64. Female, head. 65. Female, dorsal view.

66, 67. *Plagiolepis nynganensis* sp. nov. 66. Worker, lateral view. 67. Worker, head.

68-70. *Stigmacros elegans* sp. nov. 68. Worker, lateral view. 69. Worker, head. 70. Worker, dorsal view.

Head and thorax densely microscopically punctate; node and gaster smooth.

Hair greyish, long, sparse, more abundant on gaster. Pubescence greyish, fine, adpressed on antennae and legs.

Head as broad as long, slightly broader behind than in front, with the sides and occipital border convex. Mandibles large, at each corner of the terminal border is a small tooth, the edge between these teeth edentate; clypeus large, convex, with anterior border rounded; frontal area small, merely indicated; frontal groove distinct; frontal carinae small and parallel; scape long, extending beyond the occipital border by half its length; funiculus twelve segmented, the first segment as long as the two following, the second shorter than the third, the rest twice as long as broad, the apical slightly longer than the preceding; eyes very large, convex, occupying most of the side; ocelli large and convex.

Pronotum twice as broad as long, anterior border and sides almost straight; mesonotum large, as broad as long, broader in front than behind; epinotum at least twice as broad as long, broader in front than behind, sides almost straight, the posterior border feebly convex. In profile the dorsum is convex, slightly flattened at the mesonotum. The dorsum of epinotum is much lower than the scutellum, and about a quarter as long as the convex declivity. Node is transverse; in profile scale-like, anterior face straight and vertical, meeting the posterior face, which is convex, in a sharp point. Gaster small. Legs long and slender.

Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: A large series of all forms. There is very considerable variation in colour in the females, worker maxima and worker media. The worker minima does not seem to vary. This species is distinct from all known species, but in many cases not all the forms of the other species are described, so that it is difficult to make comparisons in this genus. The worker minima of this species resembles slightly *Melophorus (Erimelephorus) scipio* Forel, but the dorsum is much shorter than the declivity, the scape is longer, and the eyes larger, but the whole ant is much smaller.

Types: Holotype worker minima, allotype male, and a series of worker maxima, worker media and the female in the collection at C.S.I.R., Canberra.

Tribe PLAGIOLEPIDINI Forel 1893.

Genus PLAGIOLEPIS Mayr 1861.

PLAGIOLEPIS NYNGANENSIS sp. nov. (Figs. 66, 67.)

Worker.

Length, 1.5-2 mm. Dull light brown to dark brown, with mandibles, clypeus, antennae and legs paler.

Mandibles and clypeus smooth; rest of head densely microscopically reticulate-punctate with the occipital region more longitudinally striate; thorax and gaster densely microscopically punctate, the punctures on the gaster rather elongated.

Hair yellowish, long, erect on clypeus, more adpressed and thicker on the gaster. Pubescence yellowish, fine adpressed, abundant but not hiding the sculpture.

Head, including the mandibles, almost one and a half times as long as broad, as broad in front as behind, with feebly convex sides and occipital border and rounded corners; mandibles large, triangular, with five small teeth; clypeus large, convex, not carinated, the anterior border broadly rounded and entire; frontal area very distinct, triangular; frontal carinae sinuous, very slightly approximating behind; eyes moderately large, rather flat, placed just behind the middle of the sides; no ocelli; scapes extend beyond the occiput by a quarter of their length. The funiculus is slightly enlarged towards the apex; the first segment as long as the two following together, second and third subequal, and as broad as long, the rest nearly twice as long as broad, the apical as long as the two preceding together.

Thorax short and rather stout, broadest through the pronotum; pronotum, including the neck, broader than long, very convex in front and on the sides; mesonotum three-quarters as broad as the pronotum, as long as broad, with convex sides; both thoracic

sutures deeply marked, and at the meso-epinotal suture are prominent stigmata. Epinotum is almost as broad as the mesonotum, very slightly broader behind than in front, twice as broad as long, with feebly convex sides and feebly concave posterior border. In profile the pronotum and mesonotum form a single strong convexity. The epinotum is much lower with the dorsum very short, passing gradually into the declivity which is about five times as long as the dorsum, and is straight and sloping. Node is hardly noticeable from above because of the overhanging anterior border of the gaster. In profile it is low, rather thin on top, strongly inclined forward, the anterior face straight, the posterior face convex and the apex sharp. Gaster broadly elliptical, voluminous, and overhanging the node. Legs long and rather robust.

Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: Seven workers which show only slight variation in colour.

Resembling *P. lucidula* Wheeler and *P. squamulosa* Wheeler, but differing from these Western Australian species in colour and sculpture. The head differs from *P. squamulosa* in length, and it is not broader behind than in front as in *P. lucidula*. The mandibles and funiculus are distinct. The thorax is more like *P. squamulosa* but the dense pilosity is lacking.

Type: Holotype worker in collection at C.S.I.R., Canberra.

Genus STIGMACROS Forel 1905.

STIGMACROS ELEGANS sp. nov. (Text-figs. 68-70.)

Worker.

Length, 1.8-2 mm. Head and thorax shining black; node very dark brown on top but light brown towards the base; gaster clear brown or amber; legs, mandibles and antennae brownish yellow with the funiculus slightly darker.

Head shining, shagreened and almost punctate; thorax, node and gaster smooth and shining except for some very scattered elongated scratches.

Pilosity hardly noticeable on any part of the body.

Head, excluding mandibles, slightly longer than broad, with the sides feebly convex and the occipital border straight, the corners rounded; mandibles triangular with at least four strong teeth; clypeus convex above, with anterior border broadly rounded; frontal area indistinct; frontal carinae short, and almost parallel; eyes large, convex, and placed at the middle of the sides; scapes extend very slightly beyond the occipital border; first segment of the funiculus as long as the two following, second to eighth as broad as long, ninth twice as long as broad, apical nearly three times as long as broad, and longer than the two preceding together.

Thorax one and three-quarters as long as the broadest part, which is at the pronotum. Pronotum is twice as broad as long, strongly convex in all directions; pro-mesonotal suture deeply impressed; mesonotum slightly broader than long, broader in front than behind, with the sides convex; meso-epinotal suture deep and wide; epinotum nearly twice as broad as long, broader behind than in front, the anterior corners rounded, the sides almost straight, and the posterior border concave. In profile the pronotum and mesonotum are flat, rounded in front and truncated behind. The dorsum of epinotum is flat and shorter than the slightly concave declivity, which is almost at right angles to the dorsum. Very near the top of the declivity is a short broad tooth directed backwards. Node from above transverse, three times as broad as long, feebly notched on top. In profile it is thorn-like, twice as high as long, the anterior face feebly convex, and rounded into the short dorsum, while the posterior face is almost straight and vertical. Gaster longer than broad. Legs short and robust.

Female.

Length, 2-2.8 mm. Colour as in worker but the gaster is much darker.

Sculpture as in worker but the thorax is more shagreened, especially on the epinotum.

Pilosity as in worker but there is a fine greyish pubescence on the funiculus.

Head as in worker, except that there are three very small and indistinct ocelli. Pronotum is almost three times as broad as long, with anterior border and sides almost straight, the anterior corners abrupt, almost right-angled, though not sharp; mesonotum broader than long, with distinct parapsidal furrows; scutellum large, broader than long, slightly broader in front than behind. The veins and pterostigma of forewings brown, and there is a single cubital cell and no discoidal cell. Rest as in worker.

Collected by J. W. T. Armstrong.

Type locality: Nyngan, N.S.W.

Material examined: Six females and twelve workers.

This species resembles *S. fossulata* Viehmeyer and *S. medioreticulata* Viehmeyer, but differs from both in colour and sculpture. The scape is much shorter than in either of these species and segments of the funiculus differ in length. The thorax is nearer to that of *S. medioreticulata* but the pronotal angles are not sharp. There are no lateral teeth on the node.

Type: Holotype worker in collection at C.S.I.R., Canberra.
